Revision number: 2 Purchasing Agent: Debbie Gundersen

Item: DUMP BEDS & HITCHES, LABOR AND MATERIAL TO EQUIP EXISTING TRUCKS

Vendor: 91491C A

Express Truck Equipment
2240 South 5370 West
West Valley City UT 84120

Internet Homepage:

Telephone: (801) 886-4900

Fax number: (801) 978-8010

Contact: Dave Walker

Email address:

Brand/trade name: Hendersen

Price: See Attached Price List
Terms: Net 30
Effective dates: 02/25/99 through 02/25/01
Days required for delivery:
Price guarantee period: 6 Months
Minimum order: N/A
Min shipment without charges: N/A
Other conditions:

REVISION #2: 3% PRICE INCREASE ON BASE PRICE.

This contract covers only those items listed in the price schedule. It is the responsibility of the agency to ensure that other items purchased are invoiced separately. State agencies will place orders directly with the vendor (creating a PG in Finet) and make payments for the same on a PV referencing the original PG. Agencies will return to the vendor any invoice which reflects incorrect pricing.

1- Labor and material to equip tandem axle trucks (existing) with dump bed, hitch etc. Including delivery.
$18048.69/ea.

GENERAL SPECIFICATIONS

Material to be furnished and installed includes:

Dump bed; hitch plate; tool box; hydraulic system; sand spreader; snow plow; controls: (Bid will not include front snow plow hitch truck portion).
Required incidental items and labor to provide a complete operating unit. Equipped trucks are to be delivered complete, tested, calibrated and ready to run with correct fluids at operating levels.

Equipment furnished to the State of Utah must meet current State and Federal safety regulations.

Wherever in this document an item is defined by using a trade name and model number of a manufacturer or vendor, it is intended that the words, “or approved equal” apply. A reference, in these specifications, to a particular product is made only for the purpose of clarification of the minimum acceptable standards. "Or approved equal" means any other brand that is equal in use, quality, economy and performance to the brand listed. A brand meeting the specified criteria may be accepted.

WARRANTY
Bid to state terms of warranty or include copy of standard warranty. All warranty periods shall start after equipment has been put into service. Basic warranty shall include agreement to allow all U.D.O.T. shops to be approved, to complete "In-house" warranty repairs, in U.D.O.T. shops. The warranty shall include parts, reasonable travel costs and labor reimbursement.

QUALITY
Each unit will be inspected when delivered.
Design, materials and components are to be as specified or when not specified, are to be as generally furnished for the intended service. Welds are to be of general good workmanship and conform to AWS D1.1 and D1.2 standards. Paint and finish details are to be of good workmanship and appearance.
Units failing this inspection will not be accepted.

PAINT
All item’s to have minimum warranty of 18 months.
All metal surfaces shall be acid washed and dried prior to priming all surfaces and painting. If rusted, metal must be sand-blasted. All auxiliary items like hydraulic control boxes, tool boxes, etc must be painted before installation. To have one coat of DuPont Jet Seal or Quick Seal primer. Complete unit to be painted to provide a minimum paint thickness of 4 mils. To be verified at time of delivery. Body to be painted to match truck cab and chassis. Color is specified as Sikkens 0311 omaha orange unleaded and clear coat.

It is the vendors responsibility to match cab paint. No hydraulic hose, fitting or electrical connection shall be painted. Painting of areas where fittings or electrical connections are placed, shall be done prior to installation.

The powder coating process of shot blasting, alkaline cleaner, iron phosphate wash, drying all parts, electrostatic/pneumatic - powder feed painting and curing is the preferred painting method. Dealer’s advertising to be omitted.

TRAINING
The vendor shall provide one day of training on the operation and maintenance of the hydraulic system at each of two locations, plus provide training videos.

NOTE: Omission of any detail or detailed description of any item in this specification, shall be regarded as meaning the best practice and only best quality materials are to be used.

DETAIL SPECIFICATIONS FOR DUMP BEDS

The dump beds are to be new units of current model. The beds are to meet the following minimum specifications, but are not limited as to features furnished by the manufacturer.

Dimensions
Capacity - 9 cu. yd. struck minimum.
Width - inside 84 in. minimum- outside not to exceed 96 in.
Height - inside not to exceed 46 ½in. to top front of side rail.
- approximately 76 ½ in. above side rails at front.
(Height as required for dump cylinder and cab protector.)
Floor of bed - Not to exceed 9 in. above truck frame.
Length to be - inside 14 ft .

CONSTRUCTION

Floor
Full length longitudinal stringers. Design as required, to be specified in bid.
If stringers are formed section, material to be 1/4 inch T-1 steel.
Radius at floor to side joints not to exceed 8 in..
Floor plate including radius to be one piece, T-1 steel, 1/4 inch thick.

Sides
Side plates 10 ga. minimum, 50,000 psi steel and tapered toward the rear..
Slope top rail, bottom rail, one stiffener between top and bottom rails minimum. Bottom rail and stiffeners to have sloped top.
Sides shall not extend below floor of bed.

Tail Gate
Sloping tail gate, with an approximately an 18 degree Gate slope is preferred.
3/16 plate 50,000 psi, with "H" bracing (nine panel) design. 1 1/4 in. upper hinge pins and 1 1/4 in. lower latch pins. A lift hook is to be mounted on inside center of tail gate. Gate latch to be air operated with over center action. Operating cylinder to be installed. Gate to be double acting with combination drop and spreader chains. Chains to be located at outside edges of gate with keepers on end posts to keep chains clear of material flow. Chains to be attached so as not to interfere with operation of pull tarp. Chains to be 5/16, transport G-70 chain with protective covering. Chain keepers to be ½ in. thick steel.

NOTE: Tail gate and bed to be stamped with matching numbers on upper right at rear corner and at least 3/8 in. height. Bed and matching tail gate to be delivered together.

Tail Skirt
Tail Skirt to have a center notch, to allow for pup trailer.

Tie Downs
To have two tie down chain brackets combined with steps. Tie downs/steps on each side, fabricated and located as shown on last pages.

Cab Protector
10 ga. plate, 84 in. wide at bed tapering to 67 in. at front, 20 in. long. Cab protector to be 3 in. above truck cab. Cab protector to clear all cab top accessories by 2 inches. Side braces to extend 36 in. down from cab protector.

Hoist Housing
To extend up to the cab protector, to provide support.
To have a two 2 inch long sections of 1½ inch pipe, welded to the front of housing, so that shovel holder angles up at approximately 35^{o} on left side of truck.
Hoist housing to be in front of bed headboard.
Hoist housing must not extend into bed.
Hoist housing must be continuous welded to bed.

Stiff Leg
Approved stiff leg bed support to be provided. To hold leg-bed at 30 to 35 degrees above horizontal.

Hoist
Multi-stage inverted cylinder mounted at front of bed. Top end of hoist cylinder to have

vibration damper to hold cylinder when bed is in lowered position. Grease lines for trunnion and rod end to run to left side of truck with fittings accessible from ground level or permanent greased bearings. Preferred to have a lifting eye or hook on cylinder.

Climbing Aids Small steps, 10 inch long, to be installed over bottom rail at all four corners.
Full length foot rail (5/8 in. rebar) with 6 supporting brackets to be welded even with steps and arranged to provide clearance for heavy boots.
Mid step on left front corner of bed constructed of Grip Strut diamond plank. To have chrome grab handle installed at top of cab protector.

Tarp To have tarp system, with external spring tension adjustment. Spring tension to be adjustable without removing tarp. To be Pull Tarp MFG, with steel protector, load climber, asphalt resistance tarp on both sides, and tie downs. **Installed**

Mud Flaps To have approved mud flaps behind rear tandems. Flaps to be in two sections, a short and long section attached to the bed. The long section is to have steel reinforcement plate on both sides of the bottom, with hook welded to bed for hanging of mud flap. Flap design not to collect debris.

Lights To have light bar installed on a bracket, which will make the light bar level at front edge of cab protector. Bracket to be above all cab top accessories. Bracket to have triangular braces to front of headboard. To have 48" light bar, with 4 rotating lights and white cargo light insert on rear side.

Dual stop, turn and tail lights (4 in. diameter) recessed in end post on each side. All lights to be Truck-Lite 4" Super 40 with reflector, sealed system or approved equal. Wiring to be Truck-Lite 90 degree connection or approved equal, connection to have locking type plug. To include license plate light.

Wiring Wiring shall run from lights to a Truck-Lite junction box at the left rear of the bed in a protected and accessible location. All wiring to be sized for twice the design circuit current. All wiring to be pre-fabricated sealed wire loom. Wiring to be secured every 12 inches to body so no loops hang down. All wire to be one piece, no splices, with connections only in the junction box.

All lights and reflectors to meet federal and state requirements. Reflectors to be high-quality, stick on type.

Mounting Rear trunnion bracket to be part of hitch plate. (See trunnion paragraph)
Location of trunnion and length of frame to be adjusted to provide 20 inch overhang, clearance for hoist and at least 10 inch clear between chip box hitch bar and axle housing.

To have full length, 3/8 in. x 3 in. minimum, wear strips between bed and truck frame. Wear strips to be part of hitch plate installation. Angle iron subframe is not acceptable. Additional wear strip brackets are to be welded to the strip and bolted to the frame so that there is attachment approximately every 30 inches.

DETAIL SPECIFICATIONS FOR HITCH PLATES

Rear Hitch The hitch plates are to be manufactured and installed as shown on drawing on last pages.

Plate Support The side is to be cut from ½ inch plate to the size and shape shown.
The plate is to be braced and supported as shown with 4 x 4 x 1/4 square tube and plate braces.

Chip Box The chip box hitch bar is to be 1 ½ in round bar welded into the 4 x 4 tubes.

Hitch Length of tubes to be adjusted so that center of bar is 14 inches above ground with no load. There must be 10 inch clear between the chip box hitch bar and the rear differential housing of the truck.

Trunnion The trunnion bracket is to be 4 x 4 x ½ angle or ½ in. plate to match trunnions supplied with truck bed. The trunnion bracket is to be welded to the hitch plate and braces. The trunnion bracket is to be welded to the truck frame. All other connections to the truck frame are to be bolted. There is to be no other welding to the frame. All bolt holes are to be in the web of the frame. There are to be no holes drilled in the flanges of the frame.

Connections Couplers for trailer hydraulic lines, brake lines and electric connector to be supplied. Hydraulic couplers and brake line couplers shall have dust caps. Couplers shall be mounted on a plate welded to the top of the trunnion bracket at the rear of the truck.

Pintle Hitch The pintle hook is to be Premier model 470A with air cylinder. The pintle is to be bolted to the main plate in the location shown so that the top of the hook is to be 28 inches above ground with no load. There is to be a protective flap over the pintle made from rubber belting.

Tow /Hooks To have rear tow hooks, 25,000 lbs minimum each.

Tool Box Heavy duty aluminum tool box approximately 30 x 18 x 18 inches, shall be mounted on the right side frame behind cab. Tool box door shall be hinged at bottom and have stop chains to form shelf when open. Door shall have locking latch. Door shall form an interlocking closure and have rubber strip.

DETAIL SPECIFICATIONS FOR THE HYDRAULIC SYSTEM

The system is to include pump, pump drive shaft, filters, valves, valve enclosure, controls in cab, hoses and wiring. The system is to be installed, tested, calibrated and operational before delivery. The system shall meet the following minimum specifications but is not limited to standard features offered by the manufacturer.

To be MID-AMERICA, add-a-stack valve system with valve ports coming out bottom of hydraulic box or **approved equal before the bid opening**.

The system is to include all components required to perform the following functions by cable operated controls:

- Control of dump bed hoist and lowering with single axis control with detent in lower position and flow control
- Control of trailer bed hoist and lowering with single axis control with detent in lower position and flow control
- Plow lift, hold and lower with detent in lower position and flow control
- Plow angle right and left, plow functions to have dual axis control. The plow angle circuit is to include a crossover relief valve located behind the right front bumper.

The three cable control levers are to be mounted to the right of the drivers seat in convenient location and approved. Dump controls to have mechanical lock to prevent accidental operation. Note: Cable detent - Forward is down and back is up.

Control cables are to be water resistant marine type.

Brand of control cables: Morse

Control actuators are to be Morse RVC or Felsted or approved equal.

Brand of control: West-Con

The system is to include all components required to perform the following functions by electronic operated

controls: To be Gresen model GRS11 or approved equal before the bid opening.

- Manual and ground speed oriented proportional control of sander conveyor speed with provision for on/off full speed (Blast Control) and (Pass Control).
- Proportional control of sander spinner speed.

The system is to include all components for the following additional items:

- Sander circuit main switch with indicator light when on.
- Tail gate latch open/close by air valve in cab (mounted in hydraulic box)
- Trailer tail gate latch by solenoid valve.
- Sander rotobeam. This wiring circuit will also control the trailer tail gate latch solenoid when sander is not installed.
- Spinner light.
- Cab light bar and cargo light.
- Bed up warning light.
- High temperature/low level hydraulic oil warning light/ buzzer.
- Return filter restriction warning light set 10 psi below by-pass pressure.
- Tail gate latch open warning light.

Exceptions: Deduct $450.00 if supplied by chassis mfg.

All solenoid controls and additional items are to be mounted together or be in one control console. The console shall be back lighted type, back lighting must be adjustable. The console shall be located for convenient operation by driver. Main switch and all warning lights to be mounted in control console. Auxiliary wiring and accessories to be wired to truck manufacturer supplied junction box and switches.

NOTE: The proportional controls shall be protected by individual quick blow fuses. The lighting shall be on a separate circuit with appropriate size wire and circuit breaker.

The console shall be mounted on a 2 inch square column with 12 X 12 floor plate and 2 braces.

The system is to include built in ground speed simulator and be designed for calibration without special tools.

The system to be designed to prevent interruption of spreader conveyor and spinner operation when plow hoist or angle functions are operated. System must provide plow lift and plow angle at all engine speeds including idle.

Pump

Hydraulic pump shall be axial piston pressure and flow compensated load sensing type pump. (Parker model PAVC65LA12 or equal rated to 4.00 cubic inches per revolution at maximum stroke. The pump to have 1 ½" suction line.
A 1" high pressure steel ball valve, hard wired open on outlet side of pump. Pump to be mounted on front cross member of truck with shaft drive from engine crankshaft. Mounting adaptor plate to be supplied if required. Drive shaft from front PTO is to be Spicer 1350 series, with slip joint and universal joint, length as required for proper operation.

Make/model of pump: PARKER PAVC65

Filters

To have 10 micron return filter with by-pass, reset type service indicator and restriction warning light on control console. Restriction warning to be set 10 psi below by-pass pressure. Filter to be outside tank and to have Fram P3772 (or equivalent) spin on replaceable element. Filter to be outside frame in accessible location.

Valve enclosure

Control valves to be mounted in weatherproof but not airtight enclosure, made of 10 ga. steel and cover not with the base.

To have wheather-sealed cover around the entire perimeter and to be held by 3 (minimum) heavy toggle or rubber latches on each side. Cover must attach securely with lifting handles, the flange must overhang the top edge of the bottom pan and be removable with truck bed in down position.

Hydraulic lines will enter cabinet through bulkhead fittings in the bottom of pan and below the frame. Electrical lines and control cables will enter through weather proof fittings. System pressure gauge to be located in valve enclosure. There is to be provision for connecting a gauge to the various circuits.

Mounting

Valve enclosure to be mounted on right side frame behind cab. Mounting system to include brackets bolted to truck frame. Angle brackets welded to valve enclosure. Rubber pads shall be placed between mounting brackets and angle brackets on enclosure. Bolts with Nylon lock nuts to hold units in place. Mounting is to allow valve enclosure to be removed leaving brackets in place on truck frame.

Hose

All hydraulic lines and fittings to be hydraulic type.
Standard pipe fittings are not acceptable.
Hose fittings shall be JIC 37°, crimped type.
All hose shall be bundled with heavy ties spaced at 12 inches, where possible, and clamped and supported with padded hose clamps at 3 ft. intervals to prevent sagging and chaffing. Hose shall be the following minimum size and shall meet or exceed SAE standards. To be Parker 431 type or equal.

Each hose assembly shall be numbered and have a metal band or tagged at each end with the hose assembly number. Hose assembly numbers shall be shown on hose assembly list and on pictorial circuit diagram.

Pump suction line - No. 24, SAE 100R4
Pump pressure line to valve bank - No.16, SAE 100R2
Conveyor pressure line to rear of frame - No. 12, SAE 100R2
Conveyor line to have Parker FF-752-12FP coupler with dust cap.
Spinner pressure line to rear of frame - No. 8, SAE 100R1.
Spinner line to have Parker FF-751-12FP coupler with dust cap.
Spinner and conveyor common return from rear of frame - No. 16,
SAE 100R1 with Parker FF-1002-16FP coupler with dust cap.
Bed hoist line to be No. 16 SAE 100R2.
Filter return line to be No. 20 SAE 100R1
Trailer dump line to rear of frame No. 16, SAE 100R2 with Parker FF-1001-16FP coupler with dust cap. Plow hoist and angle lines - No. 8, SAE 100R2 to be run to a manifold and cross-over relief valve mounted behind and below front bumper on right side. Plow angle right line to have Parker FF-502-8FP coupler, angle left line to have Parker FF-501-8FP coupler and plow lift to have Parker FF-501-8FP coupler. Plow lift line to be run from manifold approximately 3 ft. to lift cylinder. Lift line to have Parker FF-502-8FP coupler on one end and 90° fitting at cylinder end.
All quick couplers to have dust caps.

Wiring

- wiring from fuse block to console
- light wiring from to console to junction box located at rear of bed
- control wiring as required from console to valves
- any additional wiring as required to produce a fully operational equipped truck.

Wiring outside enclosures and junction box to be one piece runs, with no splices. Wiring to be in Truck-Lite snap seal system. Wire shall be clamped at 12 inch intervals and as required to prevent sagging or chafing. All wiring and switches shall be sized for twice the design circuit current and in no case less than 18 ga.

Trailer Connections

Couplers for hydraulic lines, brake lines and electrical connector to be supplied. All trailer connectors shall be mounted on a plate welded to the top of hitch plate and located for easy connection. All connectors to have dust caps. Electric connector to be Pollak 11-721 socket, wired as shown on attached drawing.

Oil

The system will have reservoir filled to operating level with Chevron Tractor Hydraulic Fluid, CPS#226606, or approved equal tractor hydraulic oil.

Testing

The complete system is to be tested for leaks, for proper operation and calibrated before delivery.

Delivery must also include 8 complete sets of parts lists and shop (repair) manuals. These manuals must include the following information:

-a list of mechanical parts.
-a list of electrical parts including lights, with manufacturer and part number.
-an electrical circuit diagram.
-a list of hydraulic components (pump, valves, filters) giving manufacturer, and part number.
-a hydraulic circuit description describing the function of the system.
-a hydraulic schematic circuit diagram using standard component symbols.
-a hydraulic circuit diagram using component pictorials and giving hose assembly numbers.
-a list of hydraulic hose assemblies giving hose type, assembly length, fittings and connection points.
-a trouble shooting guide.
-adjustment and calibration procedure.
-a copy of the operators manual.

Cost of these manuals is to be included in bid price.

OPTION Pressure filter adequate to match pump quoted on system. Filter to be located so that the element that can be replaced easily and without draining tank. To have reset type restriction indicator and by-pass. Filter to be mounted in protected location. Restriction indicator to be visible.

Bid response *Option price: $236.41*

OPTION Pneumatic variable controls for plow, dump and pup, in lieu of cable control for hydraulic functions. To have 4-way joystick variable control for plow, neutral and detent lock system for other functions.

Bid response *Option price: $618.93*

OPTION Full electronic variable controls for plow, dump and pup, in lieu of cable control for hydraulic functions. To have 4-way joystick variable control for plow, neutral and detent lock system for other functions.

Bid response *Option price: $3120.00*

OPTION Additional hydraulic valve, control's and additional items for a single function, wing plow hydraulic circuit.

Cable-Option price: $211.83

Pneumatic-Option price:$311.00

Electronic-Option price:$496.98

OPTION Sander control may be mounted to dash seat or other location. In lieu of floor mounted column.

Option price: N/C

OPTION In lieu of FF-Parker fittings, Standard Parker fittings.

Reduction in price: ($132.00)

OPTION In lieu of manual pull-tarp, electrical Roll Rite model RR504 or equal.

Option price: $680.00

OPTION In lieu of manual pull-trap, electrical Roll Rite model RR604(aluminum) or equal.

Option price: $626.00

OPTION Less sander control and electrical harness.

Reduction in price: ($830.25)

OPTION In lieu of GRS-11 control, GRS-31 controls.

Option price: $356.69

OPTION In lieu truck-lite super-40lights, the truck-lite, led super 44 lighting.

Option price: $48.60 per light

OPTION - In lieu of Standard Control / Command Center With Liquid Direct Application:

The main control console shall control all hydraulic functions, including the closed loop salt/sand control, prewetting option, anti-icing direct liquid application and auxiliary lighting. The control center shall be an ergonomically designed armrest type with all control functions at the driver's fingertips.

There shall be a joystick control that includes a fully proportional hoist control with center interlock and dual axis thumb control for plow and wing functions. The stick will also include two push button switches for spreader/liquid standby and blast. Two solid-state warning lights illuminated in red and buzzers for low oil and hot oil must be supplied.

Control center shall have separate, easy to service cable connections for feedback sensors, speedometer signal, main power, and valve outputs. There shall also be 8 switches available for auxiliary lighting or other electrical functions. The electronic spreader control shall be designed for precise, Closed Loop control of material application, liquid prewetting of granular material and direct application of liquid anti-icing. The spreader system alphanumeric fluorescent display shall be remote mountable with LED indicators for power, blast, standby, liquid, auger error, and

direct application. The electronic spreader control shall have a battery back-up to protect memory functions. Unit must be protected from reverse polarity as well as be over voltage protected. All circuit boards are to be conformal coated. The spreader control to be capable of self diagnostics for system errors and correction procedures. The control unit must have password protection to prevent unauthorized access to set up and calibration parameters.

Programming shall allow for blast function to be set one of three ways; momentary, timed or by distance traveled. Unit must be capable of spreading up to three alternate materials at up to seven alternate gate settings. The control unit should be able to control and monitor liquid application systems in addition to normal material application. Programming shall provide for automatic switching to open loop mode in event of conveyor feedback failure. Closed loop auger feedback signal shall be a 20 pulse greasable sensor with an 18X multiplier to provide high performance operation for the granular material. Closed Loop liquid feedback shall be by means of a digital signal flow meter to maintain precise liquid control. Programming shall also provide for two speed axle input as required.
The spreader controls shall be armrest mounted for fingertip use and shall include on/off, prewet on/off, direct application on/off, menu select scroll and rate increase/decrease joystick, spinner control and plow float enable/disable. Adjustable lighting of backlit control panel and remote display of text shall be software controlled. Text display shall inform the operator of spread rate information and calibration parameters. The unit must be capable of displaying logged spread run information for immediate reference and be able to download data to a serial printer or PC computer when complete data is required. The unit will provide real time and date. The unit must provide for programmable PWM out-put frequency between 40-150 HZ.

In addition the unit must provide stationary unload, auger reverse mode, and a programmable jump start to provide immediate material flow at start up.

The control center with electronic closed loop material control shall be Force America CommandAll system (or equal approved before bid opening).

Option price: $4210.00

Option In lieu of Standard Control -CommandAll Control Center:

The main control console shall control all hydraulic functions, including the closed loop salt/sand control with prewetting option and auxiliary lighting. The control center shall be an ergonomically designed armrest type with all control functions at the driver's fingertips. There shall be a joystick control that includes a fully proportional hoist control with center interlock and dual axis thumb control for plow and wing functions.

The stick will also include two push button switches for spreader/liquid standby and blast. Two solid-state warning lights illuminated in red and buzzers for low oil and hot oil must be supplied. Control center shall have separate, easy to service cable connections for feedback sensors, speedometer signal, main power, and valve outputs.

There shall also be 8 switches available for auxiliary lighting or other electrical functions. The electronic spreader control shall be designed for precise, Closed Loop control of material application and liquid prewetting of granular material. The spreader system alphanumeric fluorescent display shall be remote mountable with LED indicators for power, blast, standby, liquid, auger error, and direct application.

The electronic spreader control shall have a battery back-up to protect memory functions. Unit must be protected from reverse polarity as well as be over voltage protected. All circuit boards are to be conformal coated. The spreader control to be capable of self diagnostics for system errors and correction procedures. The control unit must have password protection to prevent unauthorized access to set up and calibration parameters. Programming shall allow for blast function to be set one of three ways; momentary, timed or by distance traveled. Unit must be capable of spreading up to three alternate materials at up to seven alternate gate settings. The control unit should be able to control and monitor liquid application systems in addition to normal material application.

Programming shall provide for automatic switching to open loop mode in event of conveyor feedback failure. Closed loop auger feedback signal shall be a 20 pulse greasable sensor with an 18X multiplier to provide high performance operation for the granular material. Closed Loop liquid feedback shall be by means of a digital signal flow meter to

maintain precise liquid control.

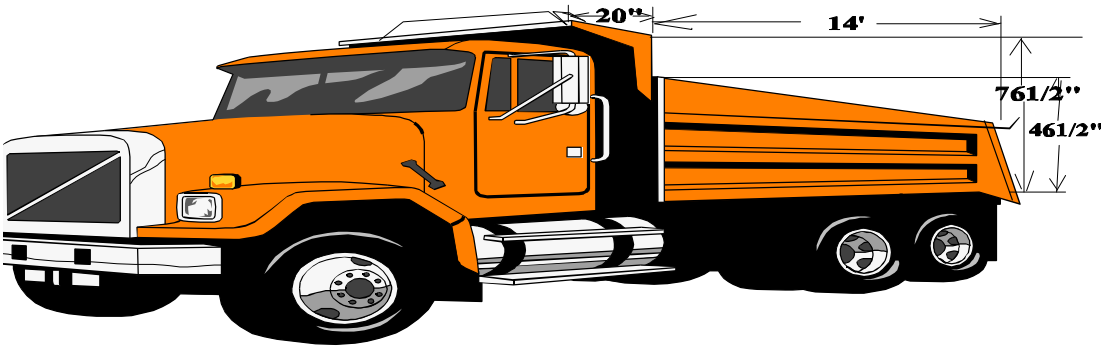
Programming shall also provide for two speed axle input as required. The spreader controls shall be armrest mounted for fingertip use and shall include on/off, prewet on/off, direct application on/off, menu select scroll and rate increase/decrease joystick, spinner control and plow float enable/disable. Adjustable lighting of backlit control panel and remote display of text shall be software controlled. Text display shall inform the operator of spread rate information and calibration parameters. The unit must be capable of displaying logged spread run information for immediate reference and be able to download data to a serial printer or PC computer when complete data is required. The unit will provide real time and date. The unit must provide for programmable PWM out-put frequency between 40-150 HZ. In addition the unit must provide stationary unload, auger reverse mode, and a programmable jump start to provide immediate material flow at start up.

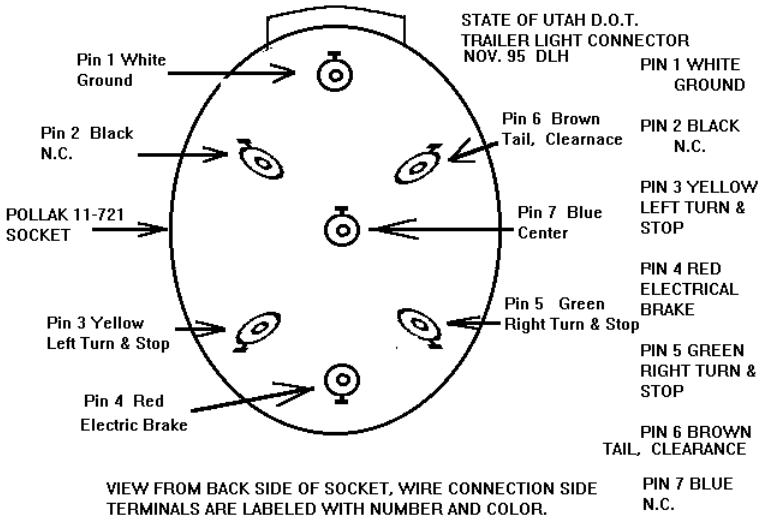
ore bid).

Bid response *Comply___* *Exceptions_____*

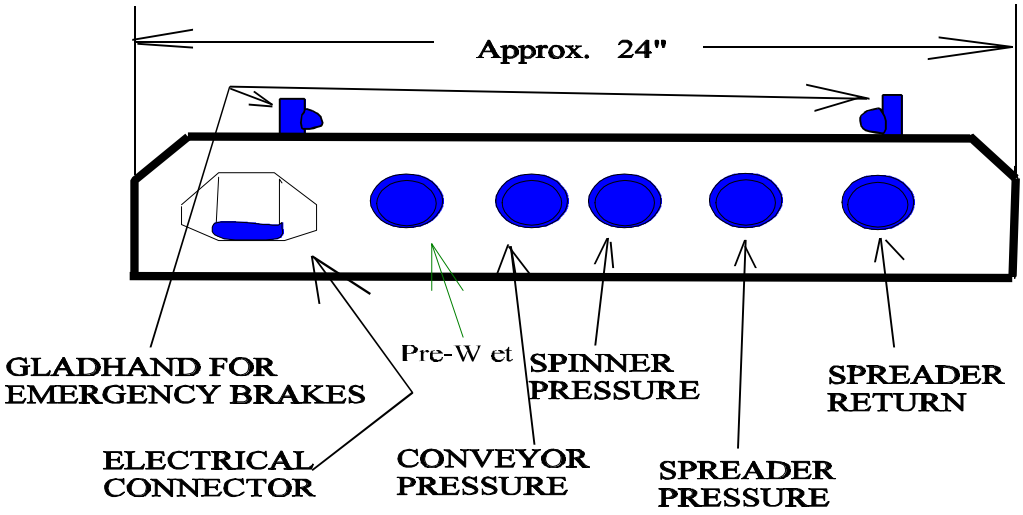
Bid response *Control Option price_____* *Not available____*

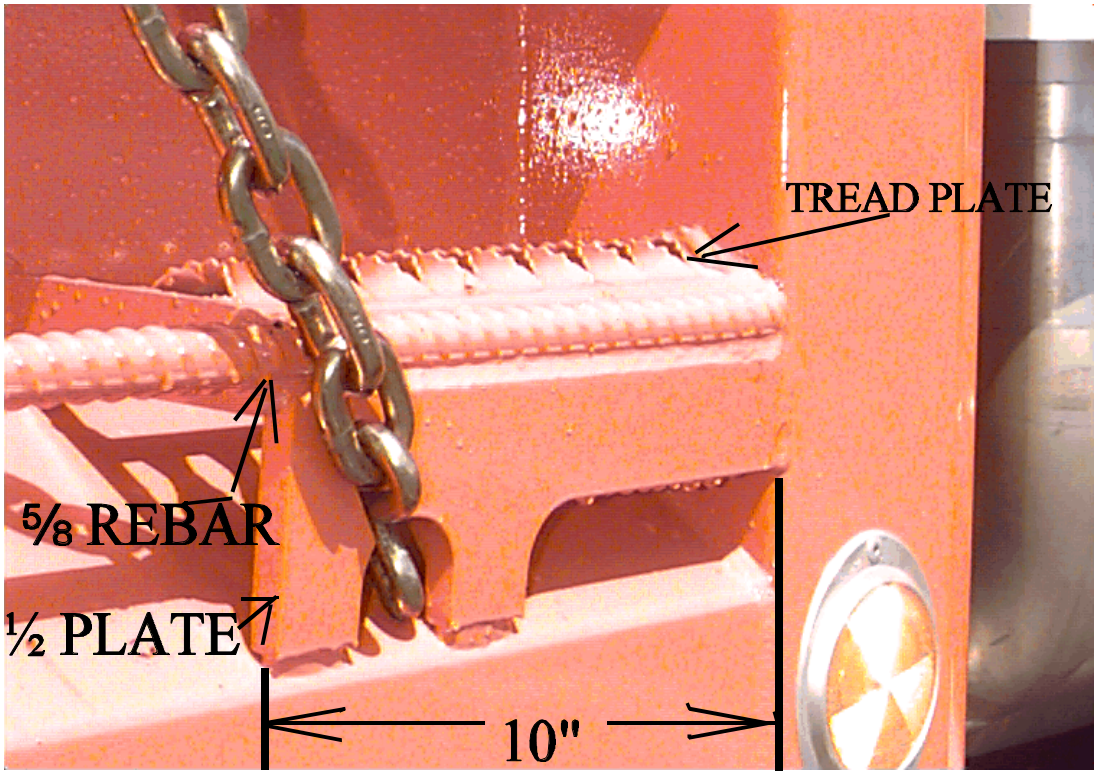
Bid response *Control Option price_____* *Not available____*





View From Rear Of Truck





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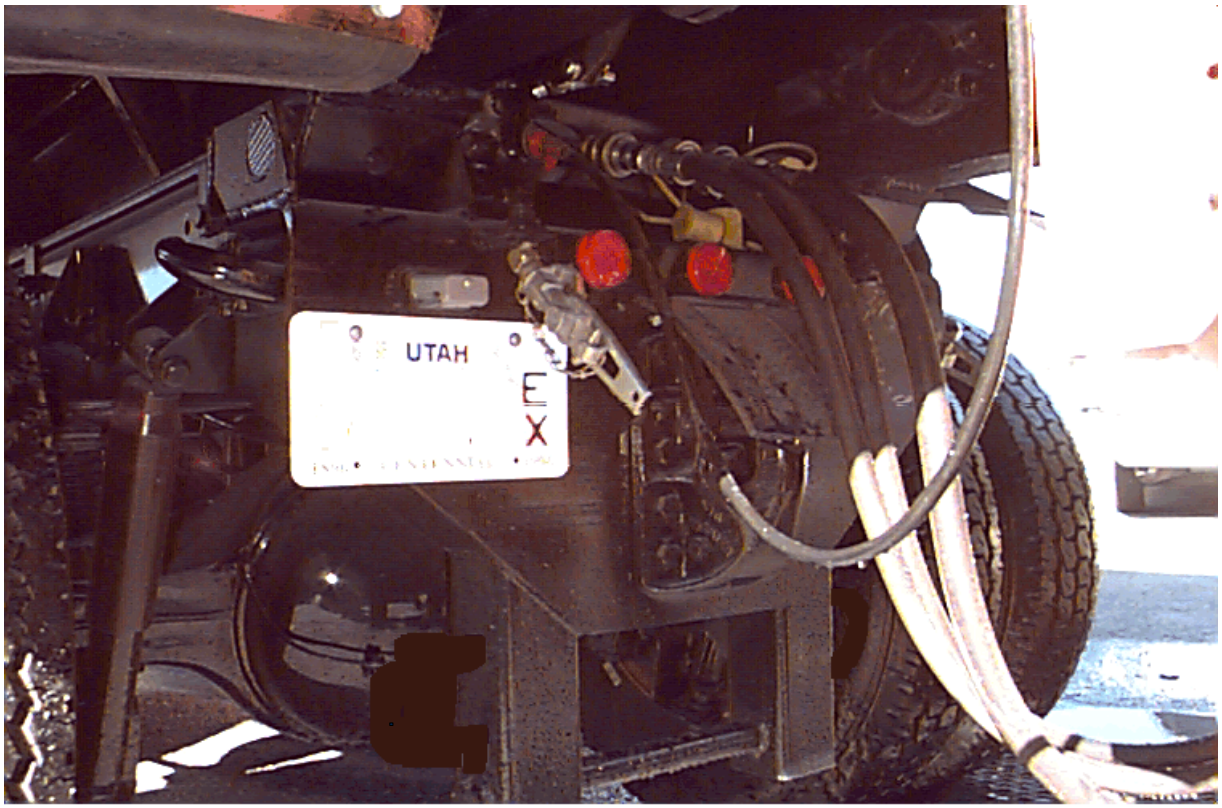
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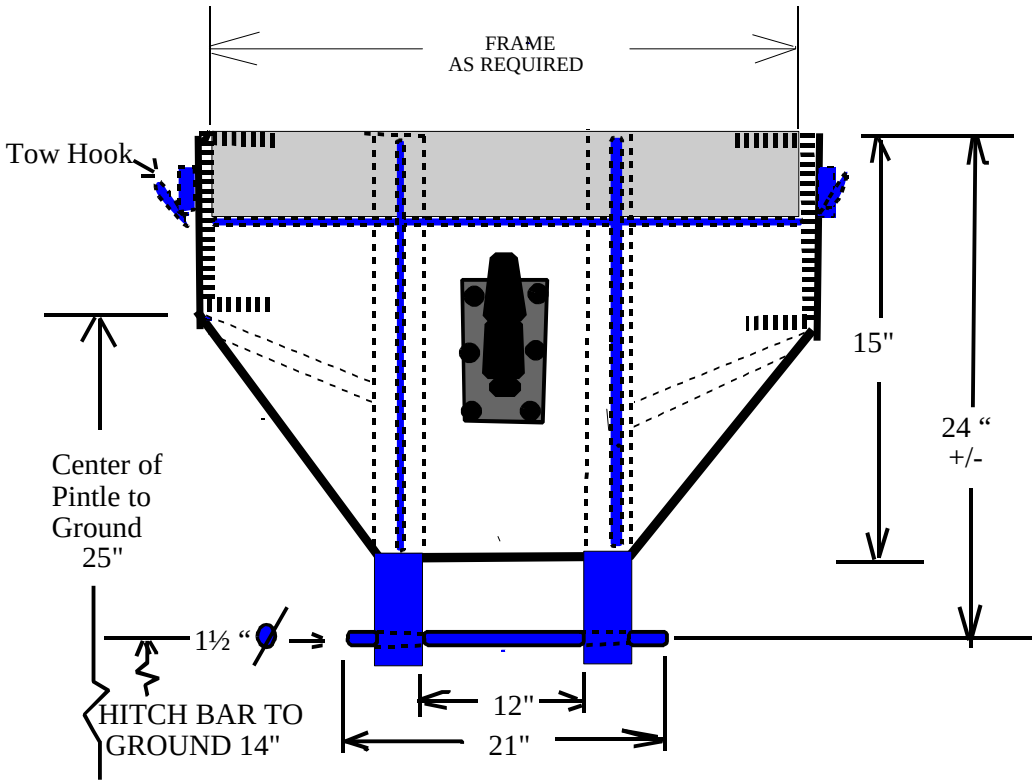
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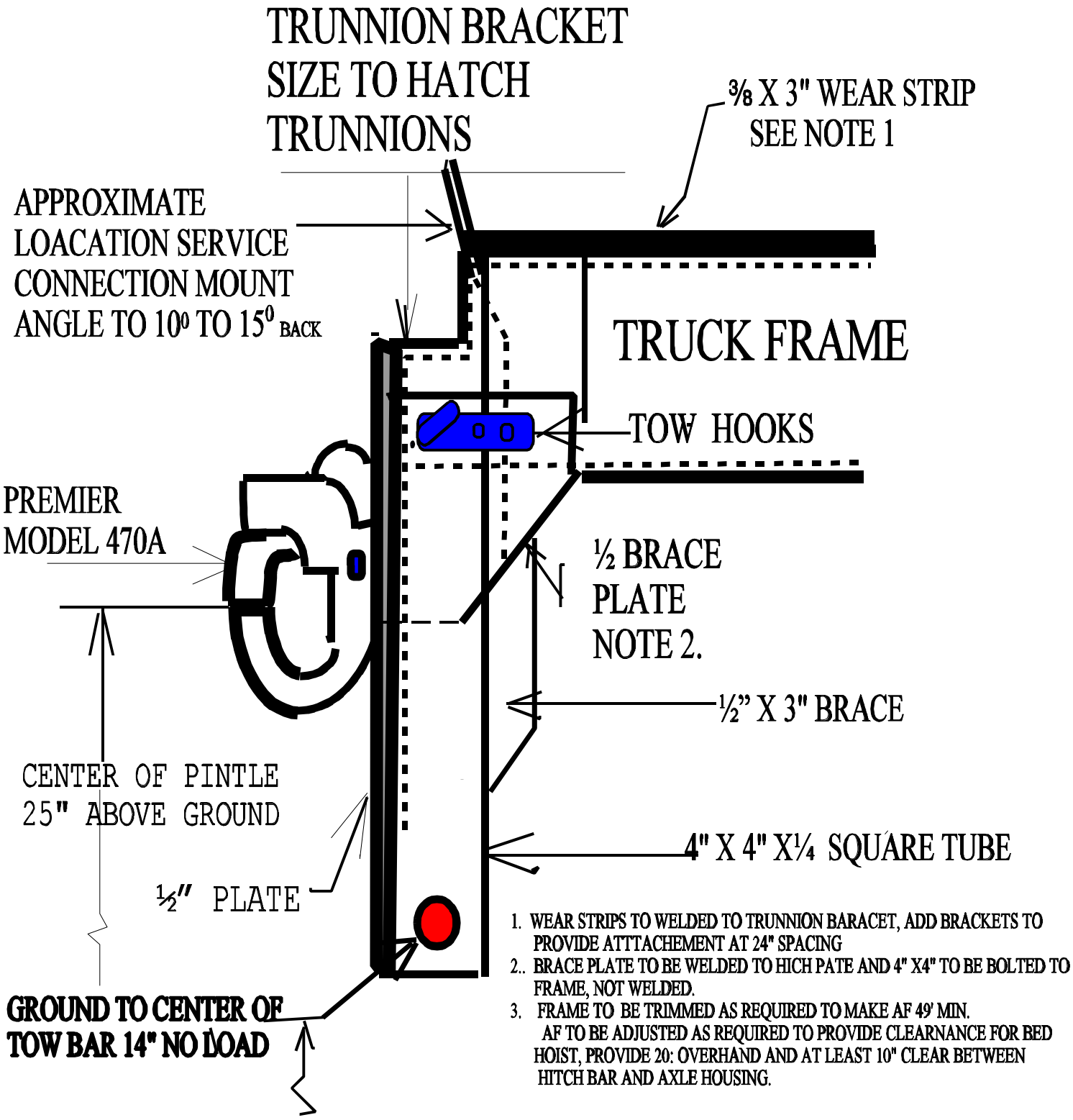
21"



1. WEAR STRIPS TO WELDED TO TRUNNION BARACET, ADD BRACKETS TO PROVIDE ATTTACHEMENT AT 24" SPACING
2.. BRACE PLATE TO BE WELDED TO HICH PATE AND 4" X4" TO BE BOLTED TO FRAME, NOT WELDED.
3. FRAME TO BE TRIMMED AS REQUIRED TO MAKE AF 49' MIN. AF TO BE ADJUSTED AS REQUIRED TO PROVIDE CLEARNANCE FOR BED HOIST, PROVIDE 20: OVERHAND AND AT LEAST 10" CLEAR BETWEEN HITCH BAR AND AXLE HOUSING.

Liquidated Damages: The vendor agrees to delivery of items as quoted in this bid. Failure, to deliver as quoted, constitutes an event of default. The actual damages to the State for the delay will be difficult or impossible to determine. Therefore, in lieu of actual damages, the vendor shall pay to the State, liquidated damages for each calendar day of delay, an amount of $50.00 per unit, up to a maximum of 90 calendar days (including pilot unit). Should the vendor be unable to complete the delivery at the end of the 90-day period, the State may, at its option, treat the contract as breached, terminate the contract, purchase substitute goods else-where, and charge the full increase, if any, in cost and handling for such purchase to the defaulting vendor, and seek such additional relief as provided by law. The vendor shall not be charged for liquidated damages when delay arises out of causes beyond the control and without the fault or negligence of the vendor.

PAYMENT:

Invoice for a pilot model truck will be approved for payment when the truck is received and approved.

Invoices for additional trucks will not be approved for payment until all documentation and manuals have been received and approved.

REPORTS:

The contractor will submit yearly reports to the State Purchasing Agent (Debbie Gundersen) showing quantities and dollar volume of purchases by each agency and political subdivision. This report will be due by 2/25/00.

FINET COMMODITY CODE(S): **FOR AGENCY USE ONLY**

06530000000 - DUMP BODIES, HOIST SUBFRAMES, ETC.